

CLAIMS

1.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel, suitable for the joining of the cable line of the tugboat with the connecting towrope of the towed vessel automatically and without the aid of any crew member on deck, characterized in that it comprises a fastening carriage (7) that can move on a guide rails (6) existing on the entire or part of the surrounding contour of the deck (2) of the tugboat (1) and at height approaching the gunwale (3); and in that the fastening carriage (7) comprises drive means on the guide rails (6) autonomously; and in that the fastening carriage (7) comprises a clamp (12) joined with the cable line (not represented) for the joining of said cable with the towrope (4) launched from the towed vessel; and in that the fastening carriage (7) is connected by means of a control circuit (19) with a remote control console (13) for its automatic or manual operation.

2.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claim 1, characterized in that the carriage (7) is made up of a frame (8) having a set of drive wheels (24) connected to a motor (9) and applied on the guide rails (6); and in that existing between the motor (9) and the drive wheels (24) is a set of transmission and reduction pulleys (27) and belts (28) or the like.

3.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1 and 2, characterized in that the frame (8) comprises a set of idle wheels (25) applied on the guide rails (6); and in that said set of idle wheels (25) is arranged opposite to the set of drive wheels (24); and in that said set of idle wheels (25) is arranged within a compressing footing or support (26) or the like.

4.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1, 2 and 3, characterized in that the guide rails (6) are made up of a pair of preferably cylindrical rails

arranged parallel and aligned notably vertical or inclined; and in that the guide rails (6) are held by a series of supports (5) on the deck (2) of the tugboat (1); and in that the set of drive wheels (24) has a grooved contour in correspondence with the rail of the guide rail (6) on which it is applied; and in that the set of idle wheels (25) has a grooved contour in correspondence with the rail of the guide rail (6) on which it is applied.

5.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1 and 2, characterized in that it comprises a battery (18) supplying power in the carriage (7); and in that the frame (8) comprises supports (10) of said battery (18).

6.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1, 2 and 3, characterized in that it comprises a battery (18) charger (16) installed in the suitable area of the guide rails (6) not coinciding with the conventional working area; and in that the carriage (7) comprises a recharging mechanism (17) for the battery (18) that can be coupled with the charger (16) with or without contact.

7.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claim 1, characterized in that the control circuit (19) existing in the carriage (7) has communication with the control console (13) by means of radio transmission wireless communication (15 and 22) or the like.

8.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claim 1, characterized in that the carriage (7) comprises an arm (29) projecting from the frame (8) incorporating a clamp mechanism (12) with a sensor (21) detecting the presence of the towrope (4); and in that the mechanism of the clamp (12) comprises two open V-shaped guide rods (23) of the towrope (4) supported on the gunwale (3) towards the clamp (12).

9.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1 and 8, characterized in that the projecting arm (29) has an adjustable mechanism (11) of the clamp mechanism (12).

10.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1 and 8, characterized in that the clamp (12) comprises a lock solenoid (20) on the towrope (4) for their connection and the release of said clamp (12).

11.- An automatic system for taking up and handling a connecting towrope between a tugboat and a towed vessel according to claims 1 and 7, characterized in that the control console (13) comprises controls (14) and automatic or manual actuation means of the fastening carriage (7); and in that the control circuit (19) comprises a speed and motor running/stop control, a controller of the sensor (21) of the clamp (12), an actuator of the lock solenoid (20) of the clamp (12).